3GPP TSG T WG1 #6 **T1-000038r**
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To: TSG-SA

cc: TSG-T

Source: TSG-T1

Title: Liaison statement to TSG-SA on the distribution of a proposal for prioritisation of the elaboration of conformance test cases for 3G terminals.

Document for: Action

Contact: Bjarke Nielsen, TSG-T1 Chairman, Qualcomm,
e-mail: bnielsen@qualcomm.com
phone: +49 89 7414 0806

An initial list of potential conformance test requirements has been elaborated by T1. These test cases will be described first in prose and later in TTCN.
Each conformance test requirement has been assigned an implementation priority.
To accelerate the regional regulatory approvals, conformance test requirements foreseen to be part of a regional regulatory approval have been assigned priority 1. The rest of our identified test requirements have been assigned no priority.
T1 wants to confirm the correctness of the list and the priorities.
If the assignment of priorities does not correspond to the expectations of one region or country, T1 would be very happy to discuss the changing of priorities or even the adding of potential new conformance test requirements. Such a proposal should, however, be justified.
When assigning priorities it should born in mind that the test cases resulting from such a test requirement should be capable of implementation on available test equipment.

SA is invited to distribute this LS to the appropriate SDOs.

Please Fill out:

Standards Organisation (SDO) : (or relevant organisation)	
Contact details:	
Name of contact	
Function	
Telephone	
E-mail	
Address	

Any other related comments:

	Test area	Priority
	UTRA – FDD (TS34.121)	
	Transmitter Characteristics (Chapter 5)	
	5.2 Maximum output power An excess maximum output power has the possibility to interfere to other channels or other systems. A small maximum output power decreases the coverage area.	1
	5.3 Frequency Stability An excess error of the carrier frequency increases the transmission errors in the up link own channel. The UE modulated carrier frequency shall be accurate to within ±0.x ppm compared to carrier frequency received from the BS.	1
	5.4 Output Power Dynamics in the Uplink. Power control is used to limit the interference level. An excess error of the loop power control decreases the system capacity.	
	5.4.1 Open loop power control in the uplink. The ability of the UE transmitter to set its output power to a specific value.	
	5.4.2 Inner loop power control in the uplink The ability of the UE transmitter to adjust its output power in accordance with the 'power step control' command received in the downlink.	
	5.4.3 Minimum Output Power The minimum controlled output power of the UE is when the power control setting is set to a minimum value. This is when both the inner loop and open loop power control indicate a minimum transmit output power is required. An excess minimum output power increases the interference to other channels, and decreases the system capacity.	
	5.5 Transmit ON/OFF Power	
	5.5.1 Transmit OFF Power This parameter is defined as the maximum output transmit power within the channel bandwidth when the transmitter is OFF (between uplink DTX modes). Excess transmit OFF power increases the interference to other channels, and decreases the system capacity.	
	5.5.2 Transmit ON/OFF Time mask The time mask for transmit ON/OFF defines the ramping time allowed for the UE between transmit OFF power and transmit ON power. Possible ON/OFF scenarios are RACH or uplink slotted mode. Excess errors of transmit ON/OFF response increases the interference to other channels, or increases transmission errors in the up link own channel.	
	5.6 Change of TFC A change of TFC (Transport Format Combination) in uplink means that the power in the uplink varies according to the change in data rate. DTX, where the DPCH is turned off, is a special case of variable data, which is used to minimise the interference between UE(s) by reducing the UE transmit power when voice, user or control information is not present.	
	5.7 Power setting in uplink compressed mode A change of output power is required during uplink compressed frames since the transmission of data is performed in a shorter interval. The ratio of the amplitude between the DPDCH codes and the DPCCH code will also vary. The power step due to compressed mode shall be calculated in the	

	UE so that the energy transmitted on the pilot bits during each transmitted slot shall follow the inner loop power control. Thereby the power step during the transmitted part of a compressed frame shall be such that the power on the DPCCH follows the inner loop power control with an additional power offset during a compressed frame of Npilot,N / Npilot,C where Npilot,C is the number of pilot bits per slot when in compressed mode, and Npilot,N is the number of pilot bits per slot in normal mode.	
	5.8 Occupied Bandwidth (OBW) Occupied bandwidth is a measure of the bandwidth containing 99% of the total integrated power of the transmitted spectrum, centred on the assigned channel frequency. Excess occupied channel bandwidth increases the interference to other channels or to other systems.	1
	5.9 Spectrum emission mask The spectrum emission mask of the UE applies to frequencies, which are between 2.5 MHz and 12.5 MHz away from the UE centre carrier frequency. Excess emission increases the interference to other channels or to other systems.	1
	5.10 Adjacent Channel Leakage Power Ratio (ACLR) ACLR due to modulation is the ratio of the transmitted power to the power measured after a receiver filter in the adjacent channel(s) in the continuous transmission mode. Excess ACLR increase the interference to other channels or to other systems.	1
	5.11 Spurious Emissions Spurious emissions are emissions which are caused by unwanted transmitter effects such as harmonics emission, parasitic emission, intermodulation products and frequency conversion products, but exclude out of band emissions. Excess spurious emissions increase the interference to other systems.	1
	5.12 Transmit Intermodulation The transmit intermodulation performance is a measure of the capability of the transmitter to inhibit the generation of signals in its non linear elements caused by presence of the wanted signal and an interfering signal reaching the transmitter via the antenna. An excess transmit intermodulation increases transmission errors in the up link own channel when other transmitter exists nearby.	1
	5.13 Transmit Modulation	
	5.13.1 Modulation Accuracy The modulation accuracy is a measure of the difference between the measured waveform and the theoretical modulated waveform (the error vector). Excess modulation error increases transmission errors in the up link own channel.	
	5.13.2 Peak code domain error The code domain error is computed by projecting the error vector power onto the code domain at the maximum spreading factor. The error vector for each power code is defined as the ratio to the mean power of the reference waveform expressed in dB. The requirements and this test apply only to the UE in which the multi-code transmission is provided. Excess peak code domain error increases transmission errors in the up link own channel.	
	Receiver Characteristics (Chapter-6)	
	6.2 Reference Sensitivity Level The reference sensitivity is the minimum receiver input power measured at the antenna port at which the Bit Error Ratio (BER) does not exceed a specific value. The lack of the reception sensitivity decreases the coverage area at the far side from BS.	
	6.3 Maximum Input Level This is defined as the maximum receiver input power at the UE antenna port, which does not degrade the specified BER performance. The lack of the maximum input level decreases the coverage area at the near side from BS.	

	6.4 Adjacent Channel Selectivity (ACS) Adjacent Channel Selectivity (ACS) is a measure of a receiver's ability to receive a W-CDMA signal at its assigned channel frequency in the presence of an adjacent channel signal. The lack of the ACS decreases the coverage area when other transmitter exists in the adjacent channel.	
	6.5 Blocking Characteristics The blocking characteristic is a measure of the receiver's ability to receive a wanted signal in the presence of an unwanted interfere on frequencies other than those of the spurious response or the adjacent channels. The blocking performance shall apply at all frequencies except those at which a spurious response occur. The lack of the blocking ability decreases the coverage area when other transmitter exists (except in the adjacent channels and spurious response).	
	6.6 Spurious Response Spurious response is a measure of the receiver's ability to receive a wanted signal without exceeding a given degradation due to the presence of an unwanted CW interfering signal at any other frequency at which a response is obtained i.e. for which the blocking limit is not met. The lack of the spurious response ability decreases the coverage area when other unwanted interfering signal exists at any other frequency.	
	6.7 Intermodulation Characteristics Third and higher order mixing of the two interfering RF signals can produce an interfering signal in the band of the desired channel. Intermodulation response rejection is a measure of the capability of the receiver to receiver a wanted signal on its assigned channel frequency in the presence of two or more interfering signals which have a specific frequency relationship to the wanted signal. The lack of the intermodulation response rejection ability decreases the coverage area when two or more interfering signals, which have a specific frequency relationship to the wanted signal, exist.	
	6.8 Spurious Emissions The spurious emissions power is the power of emissions generated or amplified in a receiver that appear at the UE antenna connector. Excess spurious emissions increase the interference to other systems.	1
	Performance requirements (Chapter-7)	
	7.2 Demodulation in Static Propagation conditions The receive characteristic of the Dedicated Channel (DCH) in the static environment is determined by the block error ratio (BLER). BLER is specified for each individual data rate of the DCH. Excess BLER decreases the quality of the channel and decreases thus the coverage area.	
	7.2.1 Demodulation of Dedicated Channel (DCH)	
	7.3 Demodulation of DCH in Multi-path Fading Propagation conditions	
	7.3.1 Single Link Performance	
	7.4 Demodulation of DCH in Moving Propagation conditions	
	7.4.1 Single Link Performance	
	7.5 Demodulation of DCH in Birth-Death Propagation conditions	
	7.5.1 Single Link Performance	
	7.6 Demodulation of DCH in Base Station Transmit diversity modes	
	7.6.1 Demodulation of DCH in open-loop transmit diversity mode To verify that UE reliably demodulates the DPCH of the BS while open loop transmit diversity is enabled during the connection.	
	7.6.2 Demodulation of DCH in closed-loop transmit diversity mode To verify that UE reliably demodulates the DPCH of the BS while closed loop transmit diversity is enabled during the connection.	

		7.6.3 Demodulation of DCH in Site Selection Diversity Transmission mode The bit error characteristics of UE receiver are determined in Site Selection Diversity Transmission (SSDT) mode. To verify that UE reliably demodulates the DPCH of the selected BS while site selection diversity is enabled during soft handover.	
	7.7 Demodulation in Handover conditions(Inter-Cell Soft Handover Performance) The bit error ratio characteristics of UE is determined during an inter-cell soft handover. During the soft handover a UE receives signals from different Base Stations. A UE has to be able to demodulate two PCCPCH channels and to combine the energy of DCH channels		
	7.8 Inner loop power control in downlink Performance of the inner loop power control in downlink is determined by the Block Error Ratio (BLER). The purpose of the test is to verify that the UE power control is performing correctly and the average power required from BS is below defined value.		
	7.9 Outer loop power control in downlink Outer loop power control in the downlink is the ability of the UE receiver to maintain the suitable target for the inner loop closed loop PC according to the required link quality set by the network.		
	7.10 Downlink compressed mode (Single link performance) Downlink compressed mode is used to create gaps in the downlink transmission, to allow the UE to make measurements on other frequencies (determined by the BLER, average power in the downlink and the maximum power in the uplink).		

	Test Area					Priority
	Signalling - Protocol					
	Idle Mode operations (no call set up)					
		In a pure 3GPP environment				
			PLMN selection and reselection			
				UE indication of available PLMNs to user		
				UE will transmit only if BSS is present		
				PLMN selection in manual mode		
			Radio access mode selection and reselection (FDD/TDD) on network request			
			Cell selection and reselection			
				Cell selection		1
				Cell reselection		1
				Priority of cells		
				Emergency calls		1
				Immediate cell evaluation and cell reselection due to UE rejection “LA not allowed” (to verify that the UE manage the list of forbidden PLMNs)		
				Immediate cell evaluation and cell reselection on downlink signalling failure		
				Cell selection if no suitable cell is found in <time criteria> (after performing cell selection algorithm ‘acceptable cell’ should be camped on)		
				Cell reselection due to UE rejection “Roaming not allowed in this LA”		
				Cell selection on release of DCCH and DTCH		
				Immediate cell evaluation prior to RACH transmission		

			Location registration		
		Multi-mode environment (2G/3G case)			
			PLMN selection and reselection		
			Radio access mode selection and reselection		
			Cell selection and reselection		
				Cell reselection; Inter Radio Access System; 3G to GSM	
				Cell reselection; Inter Radio Access System; GSM to 3G	
			Location registration		
	IMEI Security				1
	Coding of the Bearer Capability information element				

	Test Area	Priority
	Tests of the layer 2 signalling functions	
	Transparent mode / Segmentation and reassembly	
	Unacknowledged mode / Segmentation and re-assembly	
	Acknowledged mode	
	Segmentation and reassembly	
	Concatenation	
	Correct use of Sequence Numbering on the Uplink	
	Correct use of Sequence Numbering on the Downlink	
	Control of Transmit Window	
	Control of Receive Window	
	Flow Control	
	Error Correction	
	SDU discard	
	Protocol error detection and recovery	
	Acknowledgements are sent when requested	
	Retransmission takes place when requested	
	The Estimated PDU counter operates correctly	
	Header compression	
	Triggering of Polling	
	Testing of layer 3 functions	
	Initial tests	
	Channel request	1
	IMUI detach and IMUI attach	
	Sequenced MM / CM message transfer	
	Establishment cause	
	Test of MS functions in idle mode	
	Initial conditions	
	MS indication of available PLMNs	
	MS will send only if BSS is "on air"	1
	Manual mode of PLMN selection	
	Lower layer failures in layer 3 testing	
	Layer 1 reception failures	1
	Data link layer failures	1
	Handling of unknown, unforeseen, and erroneous protocol data, and of parallel transactions	
	Radio Resource Control(RRC)	

	RRC Connection Management Procedure	
	Paging	
	RRC Connection Establishment	1
	RRC Connection Release	1
	RRC Connection Re-establishment	1
	UE Capability	
	Security mode control	
	Radio Bearer control procedure	
	Radio Bearer Establishment	1
	Radio Bearer Reconfiguration	1
	Radio Bearer Release	1
	Transport channel reconfiguration	
	Transport format combination control	
	Physical channel reconfiguration	1
	Physical Shared Channel Allocation[TDD only]	
	PUSCH capacity request[TDD only]	
	Downlink power control	1
	RRC connection Mobility procedures	
	Cell update	
	URA update	
	RNTI reallocation	
	Active set update in soft handover	1
	Hard handover	1
	Inter-system handover to UTRAN	
	Inter-system handover from UTRAN	
	Inter-system cell reselection to UTRAN	
	Inter-system cell reselection from UTRAN	
	Measurement procedures	
	Measurement control	1
	Elementary Procedures of Mobility Management (MM)	
	TMSI reallocation	
	Authentication	
	Identification	
	Location updating	
	Location updating / accepted	1
	Location updating / rejected	1
	Location updating / abnormal cases	1
	Location updating / release / expiry of T3240	1
	Location Updating / periodic	1
	Location updating / interworking of attach and periodic	1
	MM connection	
	MM connection / establishment with cipher	
	MM connection / establishment without cipher	
	MM connection / establishment rejected	
	MM connection / establishment rejected cause 4	
	MM connection / expiry T3230	
	MM connection / abortion by the network	
	MM connection / follow-on request pending	

	Default contents of messages	
	Circuit Switched Call Control (CC)	
	Circuit switched Call Control (CC) state machine verification	
	Establishment of an outgoing call	1
	Outgoing call / U0 null state	1
	Outgoing call / U0.1 MM connection pending	1
	Outgoing call / U1 call initiated	1
	Outgoing call / U3 MS originating call proceeding	1
	Outgoing call / U4 call delivered	1
	U10 call active	1
	U11 disconnect request	1
	U12 disconnect indication	1
	Outgoing call / U19 release request	1
	Establishment of an incoming call / Initial conditions	1
	Incoming call / U0 null state	1
	Incoming call / U6 call present	1
	Incoming call / U9 mobile terminating call confirmed	1
	Incoming call / U7 call received	1
	Incoming call / U8 connect request	1
	In call functions	
	In-call functions / DTMF information transfer	
	In-call functions / user notification	
	In-call functions / channel changes	
	In-call functions / MS terminated in-call modification	
	In-call functions / MS originated in-call modification	
	Call Re-establishment	
	Call Re-establishment/call present, re-establishment allowed	
	Call Re-establishment/call present, re-establishment not allowed	
	Call Re-establishment/call under establishment, transmission stopped	
	User to user signalling	
	Session Management Procedures	
	PDP context activation	
	Initiated by the MS	
	Attach initiated by context activation/QoS Offered by Network is the QoS Requested	
	QoS offered by the network is a lower QoS	
	PDP context activation requested by the network, successful and unsuccessful	
	Abnormal Cases	
	T3380 Expiry	
	Collision of MS initiated and network requested PDP context activation	
	PDP context modification procedure	
	PDP context modification	
	PDP context deactivation procedure	
	PDP context deactivation initiated by the MS	
	PDP context deactivation initiated by the network	
	Abnormal cases	
	T3390 Expiry	
	Collision of MS and network initiated PDP context deactivation requests	
	Unknown or Unforeseen Transaction Identifier/Non-semantical Mandatory Information Element Errors	
	Error cases	

	Structured procedures / emergency call	
	Structured procedures / emergency call / idle updated	1
	Structured procedures / emergency call / idle, no IMSI	1
	Speech Coded Rate signalling	
	AMR signalling/ test of the channel mode modify procedure	
	AMR signalling/ tests of handover	
	Testing of the SIM/ME interface	
	Test of autocalling restrictions	1
	Constraining the access to a single number	1
	Constraining the access to a single number	1
	Behaviour of the MS when its list of blacklisted numbers is full	1
	Testing of bearer services	
	Testing of transparent data services	
	Verification of synchronisation	
	Filtering of channel control information for transparent BCs	
	Correct Terminal Compatibility Decision	
	Negotiation between TS 61 and TS 62: Mobile Terminated call.	
	Data Rate Adaptation for Synchronous Transparent Bearer Capabilities	
	Network Independent Clocking	
	Asynchronous Transparent Bearer Capabilities	
	Interchange circuit mapping for transparent bearer capabilities	
	Testing of non transparent data services	
	Initialization	
	Data transfer	
	Negotiation of the RLC parameters	
	Facsimile tests for the transparent network support	
	General	
	Mobile originated call	
	Mobile terminated call	
	Speech teleservices	
	Test of supplementary services	
	Number identification supplementary services	
	Call offering supplementary services	
	Call forwarding supplementary services	
	Call transfer and mobile access hunting supplementary services	
	Call completion supplementary services	
	Multi-party supplementary services	
	Community of interest supplementary services	
	Charging supplementary services	
	Advice of Charge Charging	
	Charge Storage	
	Advice of Charge Information	
	Default contents of messages	
	Additional information transfer supplementary services	
	Call restriction supplementary services	
	Registration of a password	
	Erasure	
	Activation	

	Deactivation	
	Invocation	
	Interrogation	
	Normal operation	
	Handling of undefined (future) supplementary services	
	Mobile station initiated Unstructured supplementary service data operation	
	Network initiated unstructured supplementary service operations	
	MMI input for USSD	
	Specific message contents and ASN.1 codings	
	Testing of speech transcoding functions	
	Mobile station features	
	Entry and display of called number	
	Indication of call progress signals	
	Ringing tone	
	Busy tone	
	Congestion tone	
	Authentication failure tone	
	Number unobtainable tone	
	Call dropped tone	
	Network selection / indication	
	Invalid and blocked PIN indicators	
	Service indicator	
	Subscription identity management	
	Barring of outgoing calls	1
	Prevention of unauthorized calls	
	Short message service (SMS)	
	General	
	Short message service point to point	
	SMS mobile terminated	
	SMS mobile originated	
	Test of memory full condition and memory available notification:	
	Test of the status report capabilities and of SMS-COMMAND:	
	Test of message class 0 to 3	
	Test of short message type 0	
	Test of the replace mechanism for SM type 1-7	
	Test of the reply path scheme	
	Multiple SMS mobile originated	
	Short message service cell broadcast	
	Default message contents:	
	Low battery voltage detection	